

## CLAIMS

1. A multi-pitch screw wherein the thread of a screw is formed such that sections having a mild lead angle and sections having a steep lead angle are continuous alternately during a single  
5 turn along a spiral line.
2. The multi-pitch screw according to claim 1 wherein the lead angle of said section having a mild lead angle is zero (flat).
3. The multi-pitch screw according to claim 1 wherein the lead  
10 angle of said section having a steep lead angle is steeper than a self-lock angle.
4. The multi-pitch screw according to any one of claims 1-3 wherein said screw is a multi-threaded screw.
5. The multi-pitch screw according to any one of claims 1-4  
15 wherein said thread of the screw does not exist but in partial section during a single turn along the spiral line and has sections in which the thread is missing.
6. The multi-pitch screw according to claim 5 wherein said  
20 threads of the screw exist only at positions rotationally symmetrical to each other with respect to the axial line of the screw.
7. The multi-pitch screw according to claim 5 or 6 wherein said  
25 thread of the screw is formed with only a section in which said lead angle is zero (flat) and when the flank of the thread of the screw keeps a facial contact with the pressure side flank in a section in which the lead angle of the thread of a female screw is zero, an end of the thread of the screw keeps a linear contact with a position deflected in phase (position having a different rotation angle) on a play side flank of the female screw.
- 30 8. The multi-pitch screw according to claim 5 or 6 wherein said thread of the screw has sections in which said lead angle is zero (flat) and sections in which the lead angle is steep, these sections being continuous and in a phase where the flank of the thread of the screw makes contact with the flank of

the thread of the female screw, the pressure side flank of the female screw keeps a facial contact with the play side flank at a position deflected in phase (position having a different rotation angle).

- 5 9. A multi-pitch nut wherein the thread of a female screw is formed such that a section in which the lead angle is mild and a section in which the lead angle is steep are arranged alternately and continuously during a single turn along the spiral line.
- 10 10. The multi-pitch nut according to claim 9 wherein the lead angle of the section in which said lead angle is mild is zero (flat).
11. The multi-pitch nut according to claim 9 wherein the lead angle of said section having a steep lead angle is steeper than a self-lock angle.
- 15 12. The multi-pitch nut according to any one of claims 9-11 wherein said female screw is a multi-threaded screw.
13. The multi-pitch nut according to any one of claims 9-12 wherein said thread of the female screw does not exist but in partial section during a single turn along the spiral line and has sections in which the thread is missing.
- 20 14. The multi-pitch nut according to claim 13 wherein said threads of the female screw exist only at positions rotationally symmetrical to each other with respect to the axial line of the screw.
- 25 15. The multi-pitch nut according to claim 13 or 14 wherein said thread of the female screw is formed with only a section in which said lead angle is zero (flat) and when the flank of the thread of the female screw keeps a facial contact with the pressure side flank in a section in which the lead angle of the thread of a male screw is zero, an end of the thread of the female screw keeps a linear contact with a position deflected in phase (position having a different rotation angle) on a play side flank of the male screw.
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16. The multi-pitch nut according to claim 13 or 14 wherein said thread of the female screw has sections in which said lead angle is zero (flat) and sections in which the lead angle is steep, these sections being continuous and in a phase where the flank of the thread of the female screw makes contact with the flank of the thread of the male screw, the pressure side flank of the male screw keeps a facial contact with the play side flank at a position deflected in phase (position having a different rotation angle).

17. A feed screw device wherein the multi-pitch screw described in any one of claims 1-4 and the multi-pitch nut described in any one of claims 9-16 are combined.

18. A feed screw mechanism wherein the multi-pitch screw described in any one of claims 5-8 and the multi-pitch nut described in any one of claims 9-12 are combined.

19. A multi-pitch nut manufacturing method for manufacturing the nut described in any one of claims 13-16 comprising: an element step of forming an element sheet material in which a hole corresponding to a screw groove of a female screw is drilled and which has a thread protrusion corresponding to part of the thread of the female screw protruded toward the center of the hole from the periphery of the hole; and a stacking step of stacking the element sheet materials so that they are fixed integrally.